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A systems approach to evaluating the effectiveness of training programs

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A SYSTEMS APPROACH TO EVALUATING THE EFFECTIVENESS OF TRAINING PROGRAMS

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ABSTRACT

The evaluation of the effectiveness of training programs has long been recognized as a necessity in determining the allocation of investment. However, much of industry, today, still does not use an easily administered, systematic, and reliable method for determining training program effectiveness for their salaried (managerial) personnel. It is easily seen that determining training program effectiveness is not a one-shot, one-time event, but a continual process, whose aim, ultimately, is increased productivity. For the effectiveness of a training program to be adequately monitored, these four areas should be measured: (1) trainee attitude, (2) learning, (3) behavior change, and (4) productivity change. It is the conclusion of this research that the usage of the following evaluation techniques will result in an economical and fairly reliable estimate of the effectiveness of a program, when it is administered regularly and competently. The evaluation techniques are (1) case studies which measure knowledge change (2) a survey questionnaire which measures the attitude change (3) a survey questionnaire which measures behavior change through getting the reaction of peers, superiors, and subordinates, and (4) performance appraisals which can be used to monitor the change in productivity.

ACKNOWLEDGEMENTS

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I. INTRODUCTION

A. Training's Importance

Training and the evaluation of its effectiveness has been a facet in the life-style of every human being. People receive training throughout their life with no letup from the cradle to the grave. The effectiveness of the training they receive will seldom, if ever, be evaluated except in the hindsight of an individual on his achievements. Many will not perceive that their training or lack of training in a skill, body of knowledge, or behavior has a direct and significant impact on their lives and the lives of people with whom they come in contact. Training takes on many forms in different aspects and from a variety of sources. Training is believed in and is an astutely pursued investment by industry. Millions of dollars are spent in the pursuit of the realization of company goals and objectives through training.

What makes training so important and what is it? According to Dale S. Beach, "Training is the organized procedure by which people learn knowledge and/or skills for a definite purpose" (1,375). Thayer and McGehee defined training as "the formal procedures which a company uses to facilitate employees' learning so that their resultant behavior contributes to the attainment of the company's goals and objectives" (2,3). Whatever definition you choose, the

ultimate result from a training program is increased productivity from all trainees.

B. The Relationship Between Training and Evaluation

Training costs can be high and the attainment of training goals is not automatic; therefore, we must determine the return of industry investment in training. Industry is still somewhat characterized by this policy, "...spending millions for training, but not a penny for training evaluation" (3,49). From the current research and literature there appears to be a start toward investment in the evaluation of training programs in industry today. "Training programs should not be highly regarded without evidence of their effectiveness, they should not be completely downgraded when other factors or forces in the system are limiting their impact" (4,26-10). The acceptance of a training program without an attempt at evaluation is a good method of spending money needlessly.

The evaluation of a training program should be an integral part of the training process and it should be continuous. The evaluation should be planned in the training process from its conception so that the evaluative criteria are relevant to the objectives and needs of the training program. Munro H. Steel has this comment, "An organized approach has seldom been applied in industry, even though many programs are being conducted throughout industry in the United States" (5,727). Too often evaluations have

been made or designed while the programs are in progress or after they are completed. Industry must recognize that a systematic approach is necessary to the effective evaluation of a training program at any level.

DePhillips, Berliner, and Cribben have concluded "no single method is sufficient...." (6,422) in discussing the evaluation of training programs. Besco, Tiffin and King exhort that "evaluation must be built into the training program from its very conception.... A hasty or ill-planned evaluation cannot be expected to give a meaningful appraisal of the effectiveness of the training program" (7,14).

The relationship between training and its evaluation is crucial and vital in the development of effective increases in productivity. Training, conducted without a systematic evaluation built into it, could be reducing the ability of a company to survive. The company may not be aware of the investment in time and money that is being lost. Needless to say, all training is not productive and some training programs may be frustrating or detrimental to a company's goals. The evaluation of training programs is the means through which management can determine the return from their investment.

In summary of this section:

1. Training can be a good investment.
2. Training should increase productivity.
3. All training is not beneficial.

4. The evaluation of training is necessary for guidance in improving programs and in determining return on investment.
5. The evaluation of training should be an integral and continuous systematic part of the training process.

C. Statement of the Problem

Basically, the purpose of this endeavor is to devise a systematic method which can be used to determine the effectiveness of a training or development program. There are several problems to be overcome in the evaluation of a training or development program. These include the following:

1. Evaluating the objectives and not the attitudes toward a program.
2. Eliminating a portion of the biasness in the evaluation that makes it too subjective.
3. Measuring whether the program has resulted in real productivity change.
4. Nothing with which to compare the data gathered (lack of substantiation).
5. The lack of upper management support and funding of evaluation.
6. The lack of knowledge by evaluators of the factors that influence the effectiveness of the training or development program.

This is a systematic method which, applied with skill, planning and follow-through, can eliminate most of the guesswork involved in the evaluation of training or development programs.

Having discussed the relative importance of training, its evaluation, and some of the problems that are inherent in evaluation, it is time to review what is currently happening in industry today. The following section will be a review of the literature dealing with the area of the evaluation of the effectiveness of training or development programs.

II. A REVIEW OF THE LITERATURE

A. Introduction

There has been considerable research into the evaluation of training and manpower development programs; however, few techniques are verified as reliable and consistent. Duane Shultz, in 1970, made this observation, "The effectiveness of management training programs is often presumed but seldom specifically known" (8,177). In the literature, a single technique is used in evaluation and validation of specific aspects of a training or development program. However, no reference was found to a total systematic procedure to determine the effectiveness of training or development using more than one method to measure the learning and application of the learning of the trainees.

B. The Literature to 1970

/Lindbom and Osterberg (9,224) came to the conclusion in 1954 that the evaluation of training had to occur on three levels for effectiveness. These levels of evaluation are (1) classroom, (2) superior's behavior, and (3) the subordinate's behavior. So, in fact, there is evaluation of training by the perception of the trainee at each level by the involved parties. They felt that a test given before and after by a trained observer would determine the effectiveness at the first level. On the other levels a survey of

opinions or a questionnaire along with the trainee's appraisal would suffice in evaluating the training program.

Donald L. Kirkpatrick (10,8) is perhaps the most widely followed researcher of training evaluation. Almost all of the notable writers on this subject make use of the material and research that he conducted in 1959. Kirkpatrick says there are four criteria to evaluate to obtain an effective measurement of any training or development program. These four are reaction, learning, behavior, and results. What he means is the response of the trainees, the knowledge gained, the behavior changed or modified and the results of these three back on the job. With his research, Kirkpatrick suggests the methods of measuring the four basic criteria of learning. His first conclusion was that the evaluation must occur with the developing of the training program. Secondly, that you should use a written, anonymous comment sheet and questionnaire that can be quantified and recorded. The last conclusion was that the trainees must have plenty of time to submit their answer with the conclusion of the program and that the use of control and experimental groups is necessary.

In 1960, DePhillips, Berliner, and Cribben (11,402) stated that experimental research serves as a tool to evaluate the effectiveness of training. They state that "experimental research is that type of controlled research in which the variables affecting human behavior are isolated and in which one variable at a time is permitted to affect

an individual or group of individuals" (11,405). They have concluded that there are four types of criterion measure and methods. These are:

1. Tests of knowledge and information given before and after a program.
2. Objective performance scores (record of production achievements).
3. Observed scored job samples (trained observer rates performance).
4. Rated job samples (a summary of ratings or performance records over a reasonable time period).

In evaluating a program they suggest that you define the problem your training is trying to solve, and then isolate the variable in the training environment so that it alone can be evaluated. Next they suggest you determine the method and criteria for evaluating the isolated variable, gather the data for the evaluation and evaluate for the effectiveness of the training in solving the problem defined. Last of all you report to management the effectiveness of the training.

In 1961 Odiorne (12) wrote that there were four major methods of evaluation. He said they were opinion surveys, objective measures of performance, staff evaluations and overall aggregate growth appraisals. Also, in 1961, McGehee and Thayer (2,133) wrote that training evaluation should be a before and after comparison technique with a control group in utilization.

In 1965, Bass and Vaughan (13,79) present a little more updated version of Kirkpatrick. They delve into the advantages and disadvantages of each of the techniques presented by Odiorne (12). Bass and Vaughan (14,144), in 1966, present the principles to use in evaluation:

1. Evaluation should be planned at the same time as the training program and should constitute an integral part of the total program from the beginning to the end.
2. Evaluation should follow the most rigorous experimental design possible.
3. Evaluation should be carried out at several levels and at several times.

They conclude that these principles are an ideal which is not attainable today; therefore, we must continue to develop better evaluative techniques knowing a less-than-perfect evaluation is better than none.

Olav Sorensen (15,106) presented techniques for the evaluation of results. He said to evaluate results you can use depth interviews, productivity change from a 'fore and aft' comparison, mailed questionnaires, and change in organization performance. However, some programs are difficult, if not impossible, to evaluate in terms of results.

Dr. Hesseling, (16,79) in 1966, presented a very detailed study of evaluation research. Appendix 1 presents his findings. The evaluator should determine the nature of the evaluation, for whom the results are intended, what is

his own position in relation to his "customer," and whether the evaluation results are needed to determine training needs, to control the training process, or to assess the training results.

C. The Literature From 1970

George S. Odiorne, 1970, makes this statement (17,181), "The systems approach to evaluation of training starts with a definition of behavior change objectives sought through a conscious development effort. This definition then remains a yardstick against the stated goals as the measure of success. All other forms of evaluation measure the internal character of the activity itself, not the effectiveness of training." (17,182) "The evaluation of training is limited to assessing or measuring as accurately as possible how much of the desired behavior was actually attained and applied: first, in the class, and second, back on the job." He presents the essential parts for conducting a cost effectiveness study, (see Figure 1) and a method of cost comparison of different forms of training. Odiorne contends that cost effectiveness evaluation with trainee reaction surveys at the end of a training or development program can determine the effectiveness of a training program. Dr. Hauser (18), Director of Personnel Training and Development at Monsanto, states that it is impossible to determine the effectiveness of a training program through a cost effectiveness approach. You can compare cost, but not the

I Name of Training Problem _____

II Training Objective (Behavior Change Sought)

III Expense	Alternatives 1	2	3	4	5
(a) Wages of Trainees	$	$	$	$	$
___X___X_____ NO. HRS. HRLY Rate	___	___	___	___	___
(b) Staff Time					
____X_____ HRS. HRLY SAL RATE	___	___	___	___	___
(c) General Supervision					
____X_____ HRS. EST. RATE	___	___	___	___	___
(d) Direct Materials					
Books and Materials	___	___	___	___	___
Visual Aids	___	___	___	___	___
Announcements	___	___	___	___	___
Travel	___	___	___	___	___
Tel & Tel	___	___	___	___	___
Instructors	___	___	___	___	___
(e) Other					
Consultants	___	___	___	___	___
_____					
_____					
TOTAL	$	$	$	$	$

Figure 1. Table of Odiorne's Cost Comparison of Alternative Forms of Training

effectiveness of the training in obtaining company objectives. Costs of training are not an evaluation of a program's effectiveness./

Robert S. Dvorin (3,26-1) shows that there are five basic evaluative criteria. He has the four that Kirkpatrick uses and the measurement of organizational performance or results. The contention is that the effective training of individuals should be revealed in a change in an organization's performance. Dvorin suggests the use of opinion surveys, performance tests, multiple choice objective tests, interviews, rating scales, a study of performance records, observations, and evaluation of performance by peers and subordinates. Appendix 2 gives an example of Dvorin's form to measure the reaction of trainees.

D. A Review of the Major Principles

This section will be a review of the major principles discovered in the previous literature and research. It will cover the major literature to date.

A first consideration is "what do we evaluate." The conclusion we come to is that in evaluating training effectiveness you evaluate knowledge, attitude, behavior and productivity changes. Let us define what we mean when we say measure the changes in these areas. In defining a change in knowledge we mean that the trainee has acquired a body of facts or has had incorrect facts corrected. For example, in safety training, the trainee acquires the facts or body of

knowledge concerning the types of fire extinguishers to use on specific classes of fire. The knowledge change is one from ignorance to truthful facts. In defining attitude change, we are saying that a person's attitude has been revised or reshaped from an incorrect or nonexistent condition.

A good example of this is in changing a person's attitude on racial superiority to one of equality of races. In speaking of behavior changes, we are seeking to determine whether the attitude change has resulted in a desired behavior change or in the modification of an incorrect behavior relationship among the trainee's contacts. In defining productivity change, we seek to find out whether the training has had any result on the individual's productivity on the job. Productivity change is that increase in activities that results in increased production or efficiency that contributes directly to the accomplishment of company objectives and goals.

A second principle for effective measurement is that "before and after" data about the trainees in a training program are required. The major need for this is to give a basis for a valid comparison. If either the "before or after" is not available, an accurate evaluation is difficult, if not impossible.

A third principle is that training evaluation is an important part of the planning of the training or development

program. Unless evaluation is an integral part of the planning, the evaluation may be useless when attempted.

A fourth principle, well agreed to, is that both a control group and an experimental group are needed for comparison. The basis for this is similar to that for principle two, that of having something with which to compare your data for validity and reliability.

A fifth and sixth principle are that a training program without objectives and ill-planned is ridiculous to evaluate and that more than one technique should be used to evaluate the effectiveness of training or development programs.

The seventh and final principle is that without top management support the evaluation of the effectiveness of training programs is likely to be useless.

These principles, if combined, are an invaluable aid to management in evaluating a system of evaluation of training programs.

III. THE EVALUATION OF TRAINING AND DEVELOPMENT PROGRAMS

A. The Surveys

James T. Hatlan (20) sent out a short survey in the area of training program evaluation. It covered the basics of evaluation and was a preliminary survey designed to assist in the development of a more comprehensive survey. Hatlan received over 15 returns from the 200 questionnaires sent out.

A more comprehensive evaluation questionnaire was developed from Hatlan's survey and was sent to the personnel directors of the top 500 companies (Fortune 500). Approximately 10 percent of the companies responded to this comprehensive questionnaire. Of the 49 companies replying, nine said that they were not evaluating their training, but forty (81 percent) were and, consequently, could answer the questionnaire survey. (See Appendix 3 for a sample of the questionnaire and preliminary report.) The returns were scattered throughout the 500 companies, and in size based on dollar sales ranged from 161 million to 24 billion.

B. Training Objectives

To evaluate a program of training and development you need to know the objectives of training. If the general intent and purpose of training is established, then a method can be devised to evaluate the effectiveness of both

short and long-range training programs. Evaluation is the measurement of the effectiveness of training to reach objectives. When something besides a clear evaluation of objectives is measured, training or development programs cannot be obtained.

What are the training objectives of the companies? From returns of the questionnaire, the objectives of most companies are in five areas (1) job skills improvements, (2) personal individual improvement, (3) organization change, (4) production change, and (5) advancement preparation (see Figure 2). Just exactly what are the objectives that are shown in Figure 2? (1) Job skills improvements refer to the training or development of individuals to meet the necessary requirements of their job description. This includes the ability and knowledge necessary for the fulfillment of efficient job performance. For example, it is training in budgeting, decision making and safety for the current job. (2) The objectives of personal individual improvement is the development of the individual and indirectly the advancement of the company. (3) Organization change objectives are those objectives designed to modify or change the existing organization. For instance, it is the program to change the methods of implementing and communicating policy, improving communications and coordination within departments, clearing up areas of responsibility, motivating personnel, and/or introducing changes in organization structure and environment. (4) Production

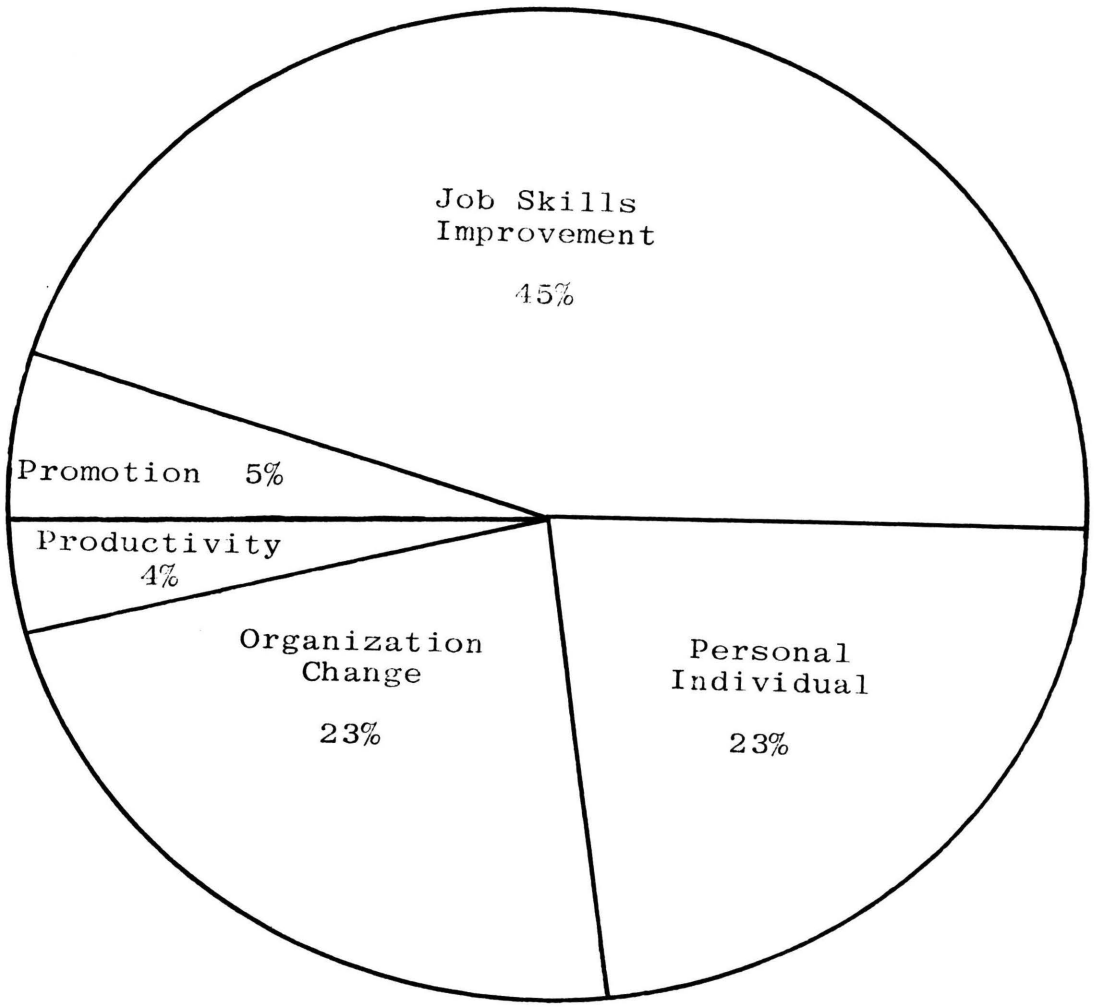

Figure 2. Major Training Program Objectives

objectives are the objectives which deal with the areas of training of quality control, productivity of workers and efficiency (scheduling, layout, time standards). (5) The last area is in objectives which deal with promotion or advancement preparation. Unless objectives are clearly set and realistic, evaluation criteria for a program cannot be established.

C. Training Techniques

In reaching objectives, industry has developed many training techniques in an attempt to find effective methods of training or developing the potential of their people. Industry has recognized that more than one technique is needed to effectively train their people. However, industry has not spent as much time to determine if their techniques are effective (see Table 1).

TABLE 1. TRAINING TECHNIQUES USED TODAY

Technique	Percentage Used
Lecture	23.0
Seminar	32.0
Case Studies	17.0
Simulation	16.0
T-Group Sensitivity	1.5
Programmed Instruction	1.0
Conference	2.0
Consultative	2.0
On The Job	4.0
Team Dynamics	0.3
Role Playing	0.2
Buzz Groups	1.0

(Training Techniques for Salaried Personnel)

It can be easily seen from Table 1 that lectures, seminars, case studies and simulation are easily the most widely used techniques for training or developing personnel (see Figure 3). This does not say that they are the most effective techniques, but merely the most widely used. If the effectiveness of the training can be determined by these four techniques, then the effectiveness of almost 90 percent of the training for salaried personnel can be evaluated.

D. The Topics of Training for Salaried Personnel

If we have a knowledge of what we are training, the development of a system to evaluate those areas is greatly facilitated. Industry attempts to develop some major areas and a good portion of training and development occurs in these areas. The topics are fairly universal and the training may occur and recur through a person's development, but in different forms and applications. (Table 2 portrays the major areas in which people are trained and Figure 4 is a graphic presentation of the same material.)

TABLE 2. MAJOR AREAS OF TRAINING

Training Area	Percentage Emphasis
Orientation	7
Safety	7
Personnel and Labor Relations	15
Principles of Management	32
Communication	16
Technical	4
Engineering and Quality Control	7
Leadership and Group Dynamics	3
General Information	6

(Areas of Training for Salaried Personnel)

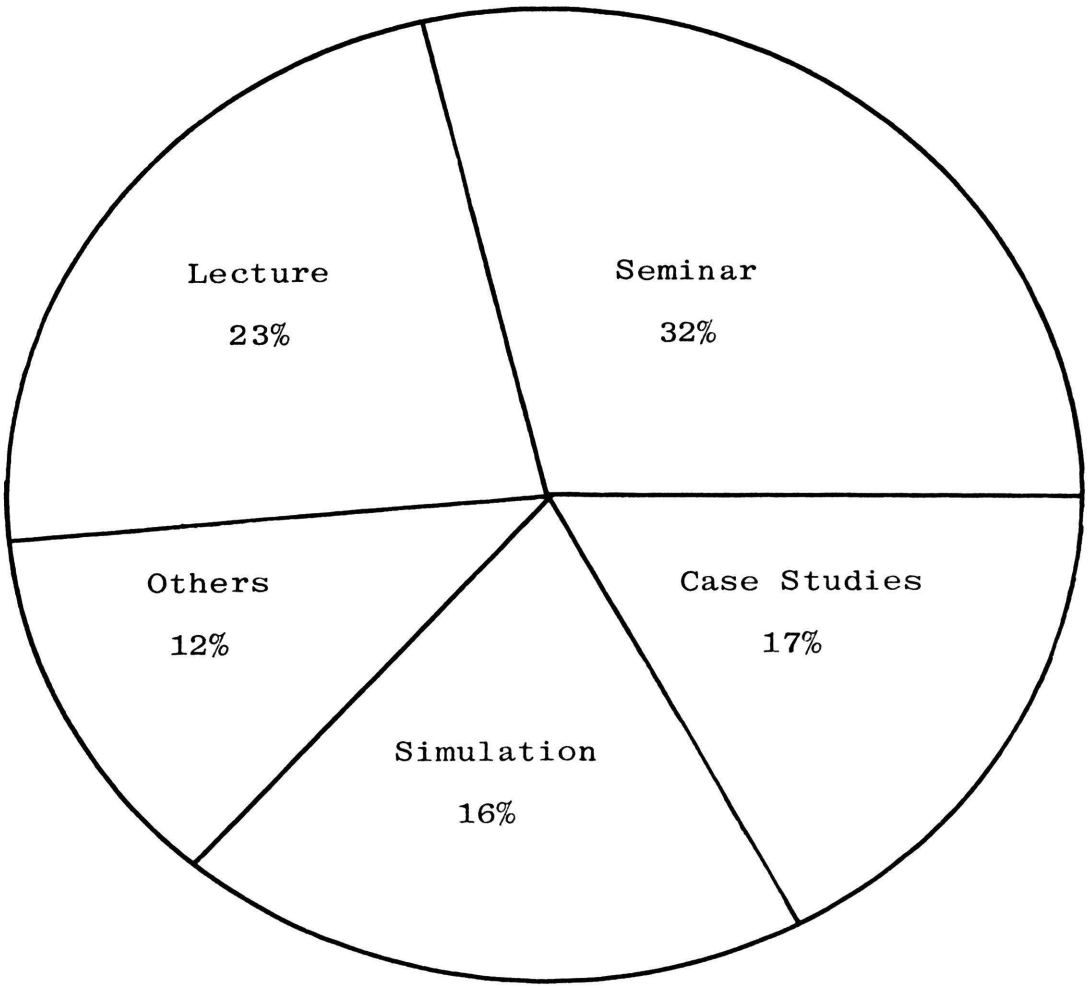

Figure 3. Training Techniques

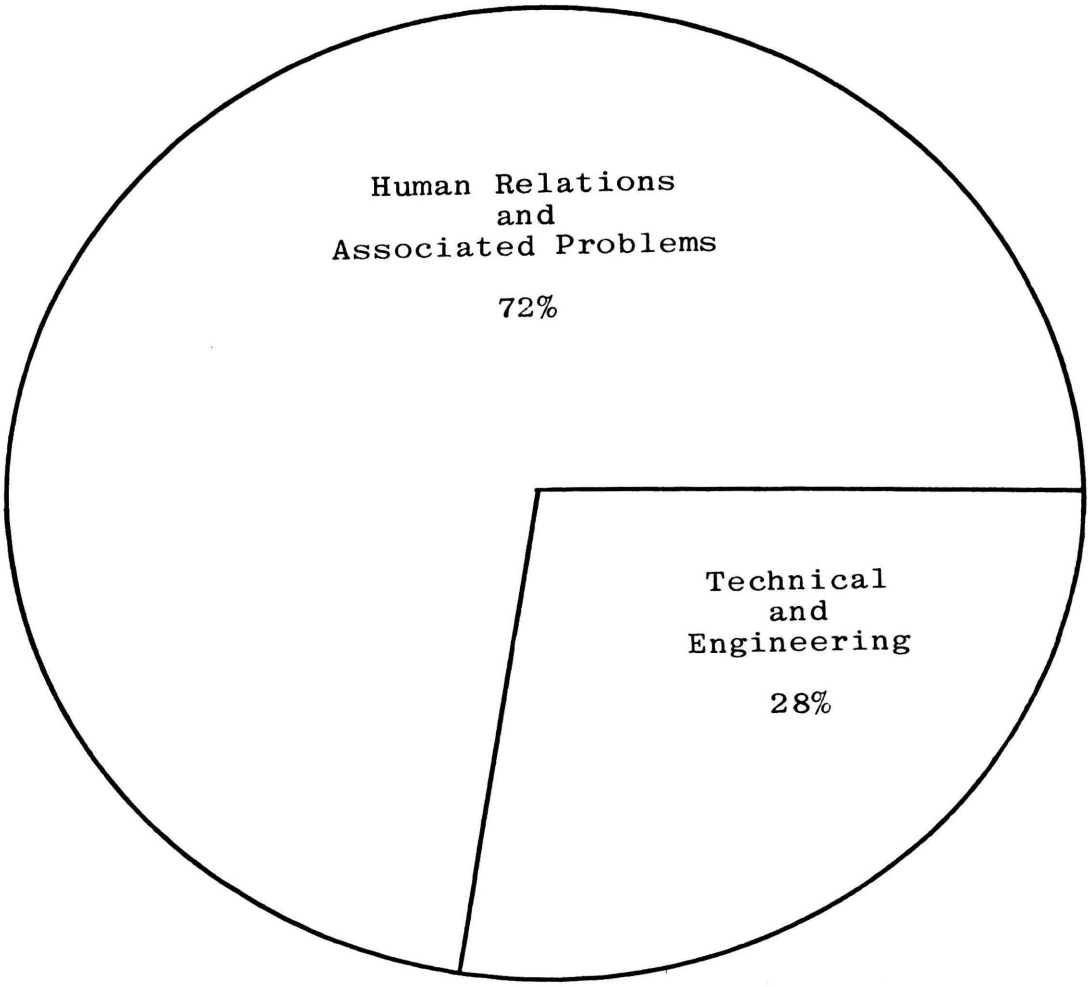

Figure 4. Major Areas of Training

In analyzing the data concerning the major areas of training, we can come to this conclusion -- at least two-thirds of training in industry deals with the relationship of one individual to another person or to a group of people, either subordinates, superiors, or peers. The other third of training is of a technical nature.

The evaluation of these areas of training pose their own unique problems. The evaluation of technical training effectiveness lacks the dynamics of the problems involved in human relations training. Essentially, though, the end result is an increase in productivity. An evaluation which does not evaluate the actual applied production results does not evaluate the effectiveness of a training or development program for salaried personnel.

E. Current Methods and Use of Evaluation Techniques

There appears to be a significant discrepancy in companies' uses of evaluation techniques. Basically, industry can be divided into three areas: (1) those using only one evaluation technique in assessing the effectiveness of training programs, (2) those using basically only one method and, at the most, three evaluation techniques, and (3) those who use two to four techniques on an essentially equal basis. (See Table 3.)

TABLE 3. METHOD AND USE OF EVALUATION TECHNIQUES

Evaluation Technique	% Companies Using	% Using Tech. 80% Time	Average Usage	% Using Technique And One Other
Written or Oral Evaluation	85	40	56	75.0
Test (Before and After Prog.)	5	3	2	5.0
Case Study	23	-	3	2.5
Productivity After	28	10	13	2.5
Psychological Test	13	-	1	-
Performance Appraisal	60	5	26	20.0
Survey	2	-	2	-
Other	2	-	-	-

Most of the companies use a written or oral evaluation and just one other technique. The written evaluation appears to be the most widely used followed by performance appraisal, case study and productivity change. Of the techniques used together, the combination of oral or written evaluation and performance appraisal is the most widely used. (Figure 5 gives a clear look at evaluation technique usage.)

F. Evaluation Techniques Defined

From Table 3 we find that there are seven techniques being used today in the evaluation of the effectiveness of training programs. It becomes necessary for our understanding to define what these are.

The written or oral evaluation is an evaluation given at the immediate end of a training program in which the trainees submit either verbally or in writing their impression of the program, its relevance, and applicability.

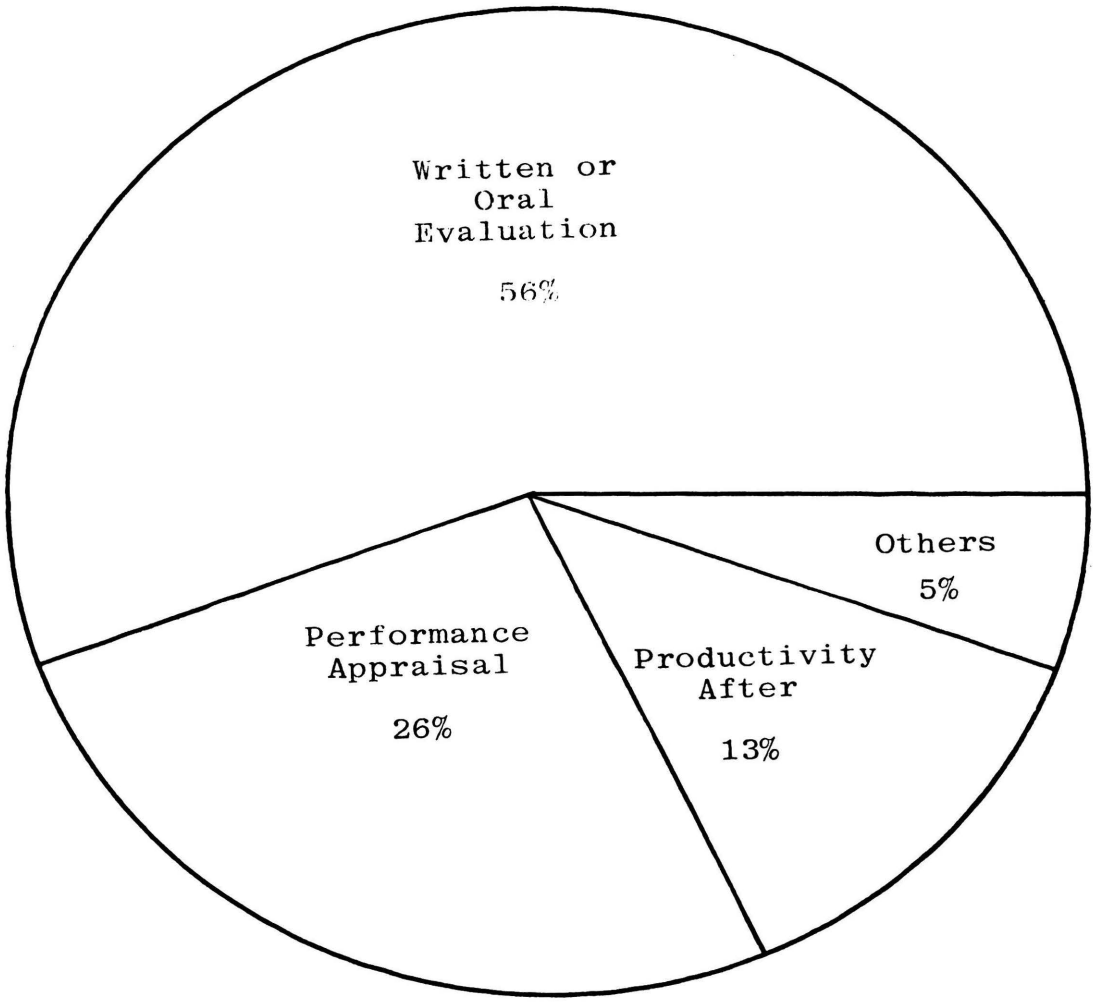

Figure 5. Evaluation Technique Usage

This is the most widely used evaluation technique, and it is useful in determining the attitudes of the trainees and in correcting minor problems in the training program. For example, suggesting larger print on charts or a better sitting arrangement.

Tests are not in popular usage as a form of determining the effectiveness of training or development programs. The technique referred to here is a test given prior to the program and one at the conclusion of the program. The increase or decrease in scores of the tests indicate the effectiveness of the program. This is a valid technique, very widely accepted, for testing knowledge change, but as indicated it is used only to a limited extent to evaluate training programs.

Case study and analysis is a form of evaluating programs in which the success of the trainees in analyzing the case indicates the effectiveness of their training. One advantage of this technique is that you can obtain an idea of how well the trainee can apply the training in 'close-to-life' situations. However, an inherent problem is the lack of a standard for evaluating the analysis and the length of time involved in grading the cases.

The improvement or lack of improvement of a trainee's productivity after a training program is used by about a third of the companies responding to evaluate effectiveness of training. Lack of objectivity is the greatest disadvantage of this technique. Evaluating production results is

very useful as an indicator of effectiveness, but should not be used as the only technique. If this technique was combined with others, an effective use could be made of it.

Psychological testing is the administering of tests or questionnaires, prepared by qualified psychologists, at the beginning and end of the training program. The tests must be evaluated by qualified professionals. The validity and reliability of this technique of determining training effectiveness has not been determined. Another serious drawback is the expense involved in this method of evaluation.

The use of performance appraisals in evaluating the effectiveness of training programs merits approval and use. Upon completion of a program or before, a management by objectives system enables evaluation of objectives attained which were developed from the training experience. The attainment of the objectives set, as a result of training or development, serves as an evaluation of the application of the training. Results evaluation is obtained in this method. Some drawbacks are the coordination involved in this system with the appraisal system, and the fact that performance appraisal may take a time period from one month to two years. Approximately 65 percent of the returns indicate that it is feasible to evaluate training program effectiveness during a performance appraisal interview.

Surveys are used in the evaluation of training program effectiveness as a measure of employee attitudes and knowledge. Surveys come in various forms, such as anonymous

comment sheets and detailed multiple-choice questionnaires. They are in fairly wide use.

These are the basic techniques in use today. Each evaluation technique has its advantages and disadvantages. Most of the techniques, if used separately, are not an adequate measure of the effectiveness of training programs.

G. Criteria and Timing for an Evaluation Technique or System

As the person in charge of evaluating the effectiveness of a training program, what criteria would you desire in your system of evaluation? From the survey returns, a definite pattern arose for criteria for evaluating the effectiveness of a training program.

TABLE 4. DESIRED CRITERIA IN AN EVALUATION TECHNIQUE

Desired Criteria	Rank in Desirability (1=Best, 5=Least) 1	2	3	4	5	Average
Simplicity in Administering	12	4	4	4	3	2.33
Written Record	3	7	4	6	5	3.08
Ease of Comparison	6	5	10	3	1	2.52
Time (Shortness)	5	4	6	8	5	3.64
Uniformity	3	3	2	5	10	3.625

We observe that there are a lot of different criteria desired by individuals in different ranks. We can say that certain criteria are more desired than other in a particular order. The optimum order that can be seen is simplicity, first; ease of comparison, second; a written record, third; time involvement, fourth; and uniformity, fifth.

The criteria simplicity is the ease of administering the evaluation. An evaluation of the effectiveness of a training or development program that can be easily administered frees personnel to do more valuable things, and results in increased productivity of the personnel department. Ease of comparison is a criteria valued by the persons involved in evaluation. If we cannot have a valid comparison in implementation of the evaluation system, we cannot determine the value of the effectiveness of our evaluation. A written record is a necessity for past and present comparison. The evaluation should be of a nature such that we can easily store the material for future reference. A time criteria is one of resource. The less we have involved and still obtain the effectiveness of training the greater is the return on the resources we use. In this case, the resources are people, time, and money. Shorten the time while maintaining the quality and we increase productivity. Uniformity is a needed criteria. Without a uniform evaluation of many programs we have no basis upon which to compare the value of alternate training or development programs.

In looking at the timing of evaluation, industry is aware of the importance of evaluating a training program before initiation. When should a program be evaluated?

Timing	Percentage
Before Program	3%
After Program	37%
Both the Above	60%
6 Months After	83%

In talking with personnel directors at Monsanto and Southwestern Bell Telephone, we found in their pre-program evaluation that they evaluated their training program by having a vice-president go through the program or have the managers whose men will attend the program meet to review the program and approve or disapprove of it. The quality of pre-program evaluation varies tremendously in scope and effectiveness. Pre-program evaluation provides us with the basis for comparison which allows us to measure change.

H. The Best Evaluation Techniques According to Industry

It was discovered that over 21 different evaluation techniques are currently in use and considered the best by someone. These techniques are used to determine the effectiveness of training programs. (See Appendix 4.) Of the 21 techniques used, five of the 21 techniques account for approximately two-thirds of the use. Those five are:

Technique	Percentage Use
1. Written evaluation by trainees of the program	12%
2. Statistical production improvement	22%
3. Pre- and post-written tests	11%
4. Managerial feedback	11%
5. Performance appraisal	10%

Of these five techniques, statistical production improvement represented 20 percent of the total alone.

If we evaluate the functions of these techniques, we discover that two of the techniques for evaluation of effectiveness measure trainee reaction of attitude (numbers 1 and 4), one measures the knowledge change (number 3), and the other two measure the results or productivity change (numbers 2 and 5). These techniques represent the best methods according to industry. It is noteworthy that 40 percent of the returns indicated that a measurement of results is the best way to evaluate the effectiveness of training programs.

I. Total Training and Evaluation

Whenever we talk of training and evaluation we must talk of total training and evaluation. By total training, we are making reference to the promotion of a person over a finite period of time and total training is the cumulative training or development of a person during that period. How do we evaluate the system of training or development that brings a person to a position of high responsibility and

that encompasses many programs and ten or more years? In answering this question, we need to look and see if training objectives and techniques are stable or changing.

1. Training Objectives and Change

From the data we have, it can be seen that training objectives will vary in advancement. This is what you would expect, looking at advancement logically.

TABLE 5. CHANGE, TRAINING OBJECTIVES AND ADVANCEMENT

Levels of Promotion	Weighted Percentage Emphasis Use of Training Objectives			
Level 6-Executives	10	16	47	27
Level 5-Upper Mgt.	8	23	40	29
Level 4-Upper Middle Mgt.	13	25	34	28
Level 3-Middle Mgt.	23	29	19	29
Level 2-Intermediate Mgt.	32	36	11	21
Level 1-Lower Mgt.	38	42	2	18
Training Objectives	A	B	C	D

A-Production
B-Job Skills
C-Organization Change
D-Personal Improvement

(For a detailed discussion see Part III, Section B)

In the first stages of management growth the training emphasis is centered on the basic skills needed to perform a task. As a manager moves through the organization, the training objectives gradually change. The cumulating objectives of training at the upper and executive level deals more with human relations and the associated problems in running organizations made of people. We cannot say that this is true of each organization, but in most companies the

objectives of training and development programs change with advancing levels of management.

2. Training Techniques and Change

In devising an evaluation system, do we need a system capable of evaluating many training techniques or just a few? There does not appear to be any clearly changing emphasis in the use of training techniques as a manager advances through a company's structure. The development technique a manager had as a junior staff member may be used when he is a corporate executive. Does this fit with the fact of changing development or training objectives? The answer to this is not clear, but by determining the effectiveness of training or development programs and systems, the answer can be found.

TABLE 6. CHANGE, TRAINING TECHNIQUES AND ADVANCEMENT

Levels of Promotion	Weighted Percentage Emphasis Use of Training Techniques				
Level 6-Executive	23	46	10	21	0
Level 5-Upper Mgt.	20	43	16	21	0
Level 4-Upper Middle Mgt.	26	38	16	20	0
Level 3-Middle Mgt.	21	41	16	22	0
Level 2-Intermediate Mgt.	20	35	19	26	0
Level 1-Lower Mgt.	27	37	22	14	0
	A	B	C	D	E

A-Lecture
B-Seminar
C-Performance Appraisal
D-Case Studies
E-Other

Looking at the data above, we can see that training techniques do vary in the levels of management. However, none

of these techniques change over more than 12 percent and none totally dominate.

3. Evaluation Techniques for Total Training Systems

Do we use the same techniques for evaluating a single program as we do a total training system? There is not a systematic evaluation procedure being used to evaluate total training. A point of fact, there are probably very few (less than 5 percent) companies that evaluate their total training system for producing executives or high level quality managers. We use some of the same evaluation techniques for evaluating the effectiveness of single programs, but in different emphasis.

TABLE 7. EVALUATION TECHNIQUES FOR A TOTAL TRAINING SYSTEM

Techniques	Weighted Percentage Use
Trainee's Written Evaluation	8%
Performance Appraisals	25%
Case Studies	Less than one percent
Assessment Center Approach	--
Tests	3%
Interview (In-Depth)	10%
Feedback	2%
Career Progress (Salary and Position)	13%
Productivity (Respect to Work)	13%
Degree Attainments	2%
Written Reports by Superiors	6%
Observation Ratings	4%
Behavior Change	2%
Career Analysis Grid	2%
Psychological Tests	2%
Corporate Needs Analysis	2%

A combination of five techniques would make up approximately 70 percent of the use in evaluating a total training system. Performance appraisal review is the leading technique followed by career progress and productivity records. The next techniques of greater use are trainee written evaluations and in-depth interviews.

In total training system evaluation, we are attempting to measure the effectiveness of the system to produce the ideal manager for a company. The techniques or evaluation system we use does differ from the evaluation system for a single training or development program. There is a need to determine if the training a company gives is effective in a total training or development system.

In summary, training objectives change, training techniques remain relatively stable and evaluation techniques for training effectiveness vary. This does have an impact on determining the effectiveness of a total system. Knowledge of a system is essential to the effective measurement of that system.

IV. RESULTS AND RECOMMENDATIONS

A. Attitude or Reaction Measure

The evaluation of trainees' attitudes is a valuable part of an evaluation of the effectiveness of a training or development program. Attitude measurement of effectiveness provides a quick and easily administered evaluation of a program. Some companies use attitude measurement as their only measurement of program effectiveness. However, within itself it is not sufficient for an adequate overall measurement. We can use this measurement as a short run indicator and as a corrective tool for a program. Attitude measurement allows us to correct the obvious shortcomings in a program by allowing trainees to express their opinions and recommend changes.

The most common method of using this technique is to use a questionnaire with space for comments. (Appendix 2 gives an example of this form of evaluation.) Most evaluators design the questionnaire for ease of use and quantifiability. In using the questionnaire, caution must be taken to allow enough time for adequate completion. Most companies prefer to make their own questionnaires to suit their special cases.

The use of this technique is recommended as a part of a system to determine a training or development program's effectiveness. This technique should be administered at least twice; the first time, at the beginning of the

training program itself, and, secondly, in an anonymous form, from one to three months later. Using the technique in this method, we have a valid basis for comparison, and we should have limited the amount of biasness and the proneness of some people to be "yes" men.

B. Knowledge Measure

In determining the effectiveness of a training or development program for salaried personnel, we need to determine the change in knowledge. The most widely known method is the use of tests administered after the training. However, it has been found that most companies disdain the use of tests since they are too reminiscent of high school and college. The best methods are the use of case studies or simulation. The use of simulation is a very good method; however, it does have drawbacks. Among these are cost, limited participation, and time consumption. Case studies are perhaps the most widely used, and with good reason. A person's reaction to a case study before and after a training program is accepted as a valid comparison for knowledge change. This technique is used by some companies to train personnel while it also provides a measure of change. One hindrance to the use of this technique is the subjective nature of evaluating the solutions to the case studies. This hindrance can be reduced by the assignment of standard answers and coaching by the trainers.

The use of case studies is recommended as a technique to use with others in evaluating the effectiveness of

training programs. Case studies should be administered before a training program, immediately after to one month after a program, and at least three months later. (See Appendix 5 for examples of in-house developed case studies.)

C. Behavior Measurement

Determining behavior change as a result of a training or development program is necessary for effective evaluation. Attitudes and knowledge may change but, if there is not change in actual behavior, the program may be ineffective in reaching its objectives. If we want results in behavior, we need to measure the change in behavior. Measuring reaction or attitude and knowledge doesn't measure behavior change. Attitude and knowledge evaluations measure the potential to change or produce, but not the change in behavior. Little work has been done in devising methods to evaluate behavior change. Very little measurement is occuring in this area in industry today.

Before discussing the method of evaluating the effectiveness of a training or development program for behavior change, the concept of managerial facades should be introduced. Blake and Mouton (19) define a managerial facade as "...a front or cover for reality. The face obscures the true intentions behind it; they remain undercover. Hence, a managerial facade is deceptive." (19,192) "The general feature of all facades is that the person avoids revealing the contents of his own mind, yet gives the impression of doing so." (19,193)

Looking at the reality of facades in management by individuals, we need to be wary of evaluating a program on individual attitude returns and on individual behavior change evaluations. Persons maintaining a facade can provide wholly inaccurate information as to the effectiveness of training or development. (19,210) "Since his strategies vary to take advantage of the opportune situation and the weakness of people, it may be difficult to pinpoint the facade builder except by tracking his activities over a time span."

What can we do to insure that our training results are not overly influenced by facade management? The solution is threefold. First, we must be aware that these conditions exist. Second, we can evaluate returns indicating a radical departure from previous behavior and then discard the return from the summation. Third, we should take a large enough sample size in evaluation such that the evaluation of the effectiveness of training or development programs for salaried personnel is not affected by the data on one to ten facade managers.

Well, then, how can we measure the change in behavior? Who is the first to notice if a person is upset? The people around him.

The recommendation is that in determining behavior change, you should survey the superiors, subordinates, and peers of the trainee before the development program, one to three months after the program, and six to nine months

after the program. The reason for the delay is to allow a period of time for the trainee's behavior change to take place. The survey should be designed within the company, and should be aimed at measuring the behavior changes at which the program is designed to induce. It is best to make the survey quantifiable, easily understood, and comparable.

D. Performance Measure

The measurement of a training or development program's effectiveness for salaried personnel in creating a change in performance or production is the most important element in an evaluation system. Behavior, knowledge, and attitude may change; but, if they do not result in increased productivity, the program is unsuccessful. The ultimate goal of all training is increased productivity. Therefore, any system of evaluation which does not measure the change in productivity, has not measured the effectiveness of a training or development program.

In evaluating the productivity change, it is wise to make use of the already existing performance appraisals. Rating forms, management by objective achievements, and historical production records can all be utilized to determine if there has been a change in productivity. Management by objectives is receiving greater widespread use and will eventually be the dominant method of performance appraisal. Of the returns, 65 percent said it is feasible to evaluate a training program during performance appraisal. This indicates that if we can monitor performance through performance

appraisal, we can also monitor the performance change brought about by a training or development program. This is the key to evaluating the effectiveness of a program to increase productivity.

It is recommended that performance appraisals in a management by objectives system be used to evaluate changing productivity brought about by a training or development program. This technique should be used before a program, three to six months after a program, and at seven to twelve months after a program.

E. A Systematic Method of Evaluating the Effectiveness of a Training or Development Program for Salaried Personnel

The combination of the four evaluation techniques will result in an appraisal of the effectiveness of a training or development program. The combination and diligent application of these techniques is a key to effective evaluation. The techniques should be employed with the use of a control group and experimental group for comparison purposes. The application of these techniques and the results from them are successful when fully accepted, supported, and utilized by upper management. With this support, the use of the four techniques applied together in a step by step systems approach will provide a thorough evaluation of the effectiveness of the program.

> The <u>first step</u> in this system is to determine the criteria of evaluation for the objectives of the training or development program. The objectives must be stated clearly and in practical

terms. The second step in this system is the development of the surveys, case studies and questionnaires to be used in the evaluation for effectiveness of the program. Step three is the random selection of trainees for the control group and then the random selection for the experimental group. Step four is the administering of the evaluation techniques prior to training for comparison. In this system all of the techniques should be used to evaluate the trainee before the program. Step five is the initiation and accomplishment of the training program. Step six is the application of the evaluation techniques to determine training or development effectiveness. Step seven is the gathering and comparison of the results of evaluation. Step eight is reporting to management the results of the evaluation for the effectiveness of the training or development program for salaried personnel. (See Figures 6 and 7 for an illustration of the system.)

F. Evaluating the Total Training System

The evaluation of a total training system requires that an effective measurement be made of the individual training or development programs for salaried personnel. If the individual programs can be measured, a summation can be used of the individual program as an evaluation of the system. However, other measures are needed. The evaluation of a system should also include an evaluation of the performance of the organization. The performance of the whole is an indicator of the performance of the parts. Historical statistical data can be utilized in the evaluation of the organization in evaluating the results of the training system. Another technique meriting use is the appraisal of the movement of trainees through a training system. This technique also allows for comparison to other training or

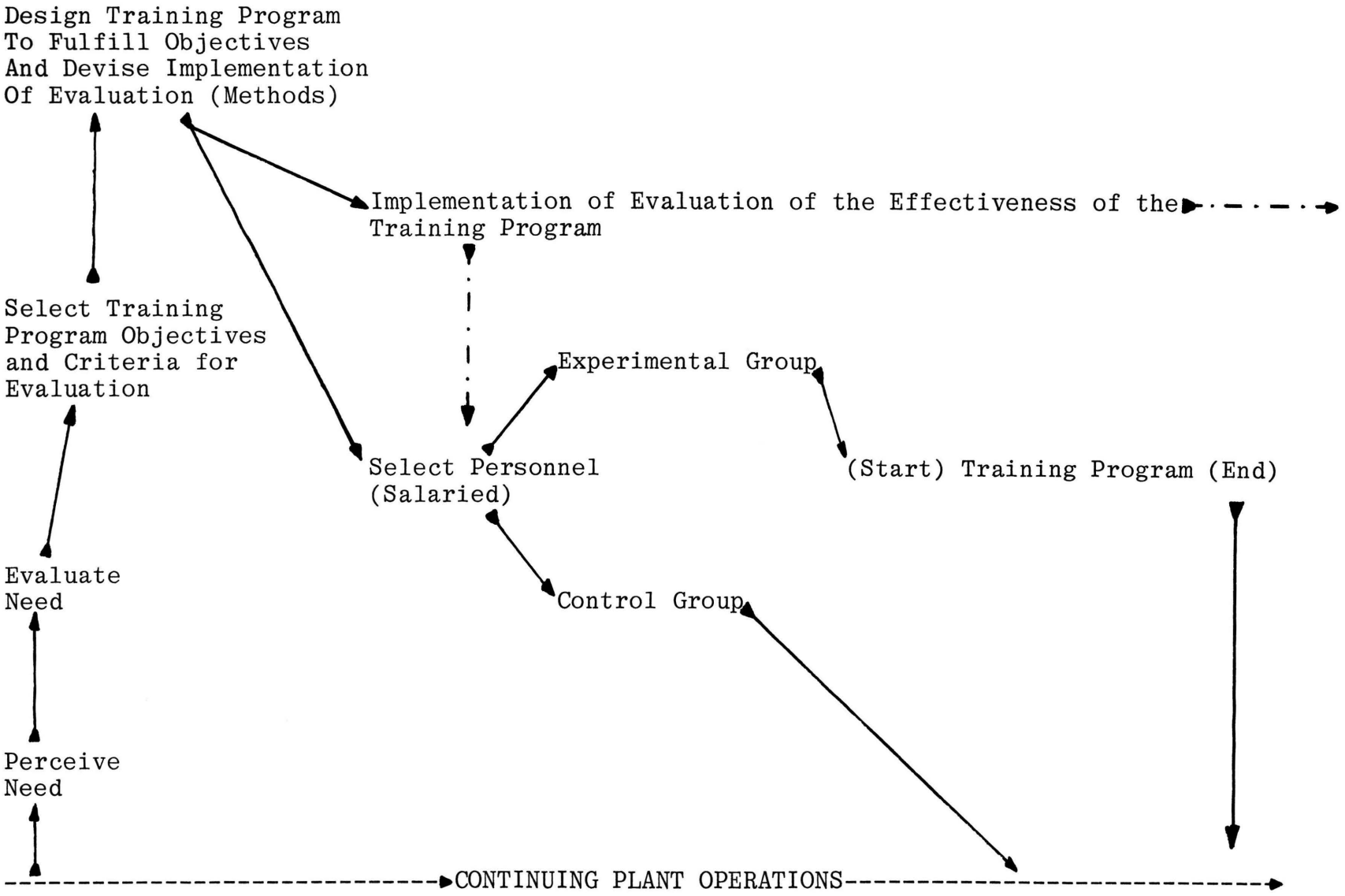

Figure 6. The Training Process and Evaluation

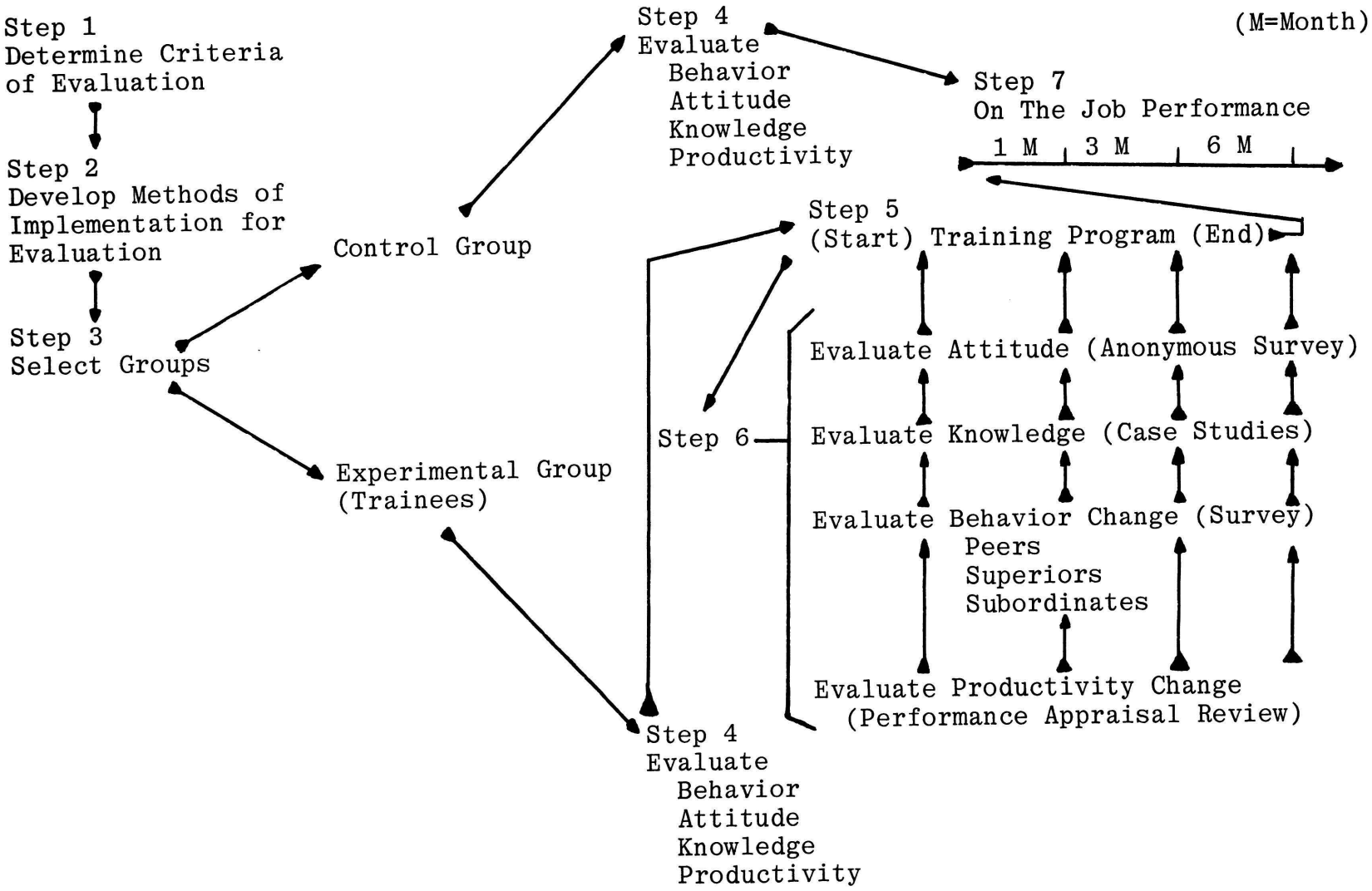

Figure 7. A Systematic Evaluation Process For A Single Or Multiple Program Of Training Or Development For Salaried Personnel

development systems within a corporation. It could not be used outside of the corporation in comparing training system effectiveness because there is no basis for a valid comparison.

In summation, when evaluating a total system of training or development use at least three techniques. The use of summary performance appraisals, organizations productivity change, and career progress of trainees are recommended as valid techniques to use in the evaluation of the effectiveness of training systems.

V. FUTURE CONSIDERATIONS

In looking at the future, obvious needs become apparent. There is room for much concentrated research into the areas of the training of non-promotable employees. What limitations on training exist for them? What future do they have in companies? Can non-promotable employees be appraised in the same methods as promotable employees, and, can their training be evaluated the same? This whole area is one deserving of further study. A second area of future consideration exists in further research concerning the evaluation of total systems, which are designed to develop personnel over a series of years.

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VITA

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Appendix 1

OVERALL COMPARISON OF EVALUATION METHODS
(Hesseling (16,284)

Methods	Time	Staff	Facilities	Conditions
Ranking of qualities (V)	short (about 2 hours per trainee)	can be combined with normal introductory interview; psychological qualifications	some statistical help, only for large scale applications: computer	systems for job analysis and performance appraisal
Rating of departments (VI)	short about 2 hours per trainee	can be combined with normal training activities; sociopsychological, organizational qualifications	some statistical help, only for large scale: computer	survey of organizational structures, description of activities of departments
Systematic observation methods (VII)	long (2-6 weeks for each "system of control")	trained observers outside training; sociological and technological qualifications	computer, video-recorder and film are helpful	small area of observation, access to all levels, mainly supervisory
self-recording of meetings (VIII)	long (2-6 weeks for each unit of about 50 people)	one researcher can design, test and interpret the recording forms; sociopsychological and sociological qualifications	punching machine or computer, tape recorder, printing facilities for pads	co-operative effort of participants, organization charts

Appendix 1 (continued)

Methods

	Time	Staff	Facilities	Conditions
Self-Assessment scales during training (IX)	during training (15-30 minutes for each training group each time)	can be combined with normal training activities; psychological qualifications	tape recorder, no special facilities	co-operative and honest effort of participants
Interaction process analysis (X) Decision matrix (XI)	during training (about 4 hours for each discussion)	preferably a co-trainer; socio-psychological qualifications	tape recorder, video recorder	case studies with full fledged problem solving situations
Opinion poll	only after (about 2 hours)	can be combined with normal training activities	no special facilities, statistical help	preferably comparable data
Questionnaire research (XII)	longitudinal (408 hours) (4 times or more)	research team; sociological qualifications	computer	co-operation, comparable research data, control group, more than 50 respondents
Communications exercise (XIII)	½-1 day for three teams	research assistant; socio-psychological qualifications	some statistical help; tape recorder is helpful	preferably residential courses, successive training groups, "middle" management

Appendix 2

SAMPLE PARTICIPANT REACTION AND EVALUATION FORM (Dvorin, 4,26-3)

PARTICIPANT REACTION FORM

PROGRAM: _____ DATE: _____

We would appreciate your sharing with us your feelings and reactions to this program so that we can evaluate it and, where appropriate, make changes to improve its usefulness. Please answer the questions below as frankly as possible and use the "comments" spaces provided for any additional thoughts or suggestions you may have.

1. Overall, how would you rate this program in terms of its value to you? (Please circle one number reflecting your feeling.)

1	2	3	4	5	6	7	8	9
Poor		Fair		Average		Good		Excellent

2. For each of the items below, please place an X in the appropriate column.

	Excellent	Good	Average	Fair	Poor
a) How well was the program content organized?	___	___	___	___	___
b) How well was the material presented by the instructor?	___	___	___	___	___
c) How well did the instructor keep your interest?	___	___	___	___	___
d) How well did the instructor respond to questions or issues raised by participants?	___	___	___	___	___

PARTICIPANT REACTION FORM (Cont'd)

	Excellent	Good	Average	Fair	Poor
e) How did you feel about the physical facilities (e.g., conference room, furniture, etc.)?	___	___	___	___	___

COMMENTS:

3. Please rate the various methods or techniques used during the program in terms of how helpful they were.

	Excellent	Good	Average	Fair	Poor
Lectures	___	___	___	___	___
Reading Materials & Assignments	___	___	___	___	___
Films					
General Class Discussion	___	___	___	___	___
Small Group Work Periods	___	___	___	___	___
Role Playing	___	___	___	___	___
Cases	___	___	___	___	___

COMMENTS:

4. How would you feel about recommending this program to others?

_____ Would strongly recommend it.
_____ Would recommend with some reservations.
_____ Would not recommend.

5. In what way could the program be improved?

6. OTHER COMMENTS:

Appendix 3

TRAINING PROGRAMS AND THEIR EFFECTIVENESS
(SALARIED PERSONNEL)
PRELIMINARY REPORT

The objective of this summary report is to draw together in an abbreviated form the data concerning training programs and the evaluation of their effectiveness as expressed by survey returns to date.

For a training program to be of value to a company, the major criteria or objectives to be communicated or built into men's lives must be established. The establishment of an objective for a training program is a great aid in:

1. determining the type of program needed,
2. the abilities required by the trainers,
3. the duration necessary for successful communication, the mode of communication,
4. the changes desired in the trainees' abilities, attitudes, techniques in problem solving, human relations, and
5. in determining whether or not a specific training program has been effective in obtaining the desired changes or results in personnel.

From the data evaluated, four major objectives were identified as criteria for having a training program.

These are stated broadly and will be explained in more detail. (See Illustration No. I) The four main training program objectives as shown from our data are:

1. organization change,
2. personal individual improvement,
3. job skills improvement, and
4. production advancement.

In this case, organization change, means that the program is directed toward implementing and communicating policy, improving communications and coordination within departments, clearing up areas of responsibility, motivating personnel, and or introducing systems or changes in structure, etc. Personal individual improvement refers to training with objectives of activating behavior and attitude changes, improving knowledge (technical) and human understanding. This area of training is directed toward the advancement of the individual more than toward productivity. Job skills improvements are development or training of managers to meet job requirements; abilities, knowledge, initiative, now and for the future. It is training personnel the necessary managerial skills (budgeting, decision making, human relations, labor relations) for efficient job performance. Production objectives are those areas of training which deal with improving productivity, quality, and efficiency, (scheduling, layout, time standards).

What training techniques are being used? The data we gathered shows that four techniques are used principally in

combination in training personnel. (See Ill. II)

The four training techniques most commonly used are:

1. lecture,
2. seminar,
3. simulation and
4. case study.

The degree to which each is used is usually dependent on the company. However, the data conclusively shows that most of the companies used each of these techniques to varying degree in their program. The use of lecture was by far the most widely used technique with seminar use a close second.

What are the main areas covered by training programs? This is a broad question to answer. Our data revealed to us that there are three areas that training programs concentrate on, in order of significance:

1. principles of management,
2. communications, and
3. personnel and labor relations.

Orientation and technical training follow respectively, but are not emphasized as much.

The necessity for training programs does not need to be argued and neither does the worth of determining the effectiveness of training programs. The question before us then is one of determining how to measure the effectiveness of training programs.

Our data reveals that the use of written tests is by far the number one measure being used today to determine

the effectiveness of training programs (See Illustration No. III).

The widespread use of a technique doesn't always imply that it is the best for accomplishing the desired objectives. In analyzing our returned survey, it appeared that you, the Personnel Directors, consider performance and the evaluation of performance with the trainee as the best way to determine the effectiveness of programs. The next best technique is student feedback and/or tests administered before and after the program. The last technique chosen as a best, is an evaluation of the changes in personnel observed by the superior in knowledge, behavior, etc., depending upon what the program objectives were. (To be continued...)

Your opinion and comments on the material presented would be a great asset to us in determining whether or not our conclusions and data so far are relevant and reliable. The return of the enclosed questionnaire would also benefit our understanding in this area. We hope the material is clear and understandable. We will be happy to answer any questions. Your time and consideration in answering our letter is sincerely appreciated.

Respectfully yours,

J. Michael Haverstick
Graduate Assistant - Engineering
Management Department

QUESTIONNAIRE CONCERNING TRAINING PROGRAMS

FOR SALARIED PERSONNEL

A. List the three major objectives or goals of your train ing programs:

1.
2.
3.

B. What percent do you use each of the following training techniques:

Lecture Method	_____
Seminar	_____
Case Studies	_____
Simulation	_____
T-Group Sensitivity	_____
Other (list) _____	_____
	100%

C. Approximately what percent each of the following areas are covered in your training:

Orientation	_____
Safety	_____
Personnel and Labor Rel.	_____
Principles of Management	_____
Communication	_____
Technical	_____
Quality Control	_____
Engineering	_____
Other (list)_____	_____
	100%

D. Please indicate the method you use in evaluating the effectiveness of your training programs and the approx- imate percentage of use:

Written or oral evaluation	_____
Case Studies (one administered before and one similar case given after)	_____
Psychological tests	_____
Performance Appraisal	_____
Other (List)_____	_____

E. In your estimation what would be the three best evaluation techniques on training programs (in numerical order).

1.
2.
3.

F. What emphasis do you place on the advantages in measuring the effectiveness of training programs? (Please rank with 1-2-3-4-5 respectively)

Simplicity in administering _____
written record _____
time is limited _____
ease of comparison _____
uniformity of tests for all personnel _____
others (list) _____ _____

G. When should the effectiveness of a training program be evaluated?

Before the program _____
Immediately after the program _____
Both of the above _____

H. Is it feasible to evaluate a program during a performance appraisal interview? Yes ____ No ____

I. Do you evaluate your training program as

A complete system designed to prepare a person for advancement _____
Individual programs _____
Both of the above _____

J. What technique would you use to evaluate a program designed to prepare a person for advancement over a period of years?

Please list in order of priority if more than one:

K. SEE Figure 1

L. Is this illustration logical and practical? Yes ____ No _____

M. Do you train personnel that are not likely to be promoted? Yes ____ No____

N. At which level of the illustration would these training objectives be emphasized? (Please indicate with a letter in order of emphasis)

Level 1 ____ ____ ____
Level 2 ____ ____ ____
Level 3 ____ ____ ____
Level 4 ____ ____ ____
Level 5 ____ ____ ____
Level 6 ____ ____ ____

A--Production
B--Job skills
C--Organization change
D--Personal improvement

O. At which level of the illustration would the various training techniques be used? (Please indicate with a letter in order of significance)

Level 1 ____ ____ ____
Level 2 ____ ____ ____
Level 3 ____ ____ ____
Level 4 ____ ____ ____
Level 5 ____ ____ ____
Level 6 ____ ____ ____

A--Lecture
B--Seminar
C--Performance Appraisal
D--Case Studies
E--Other (list)

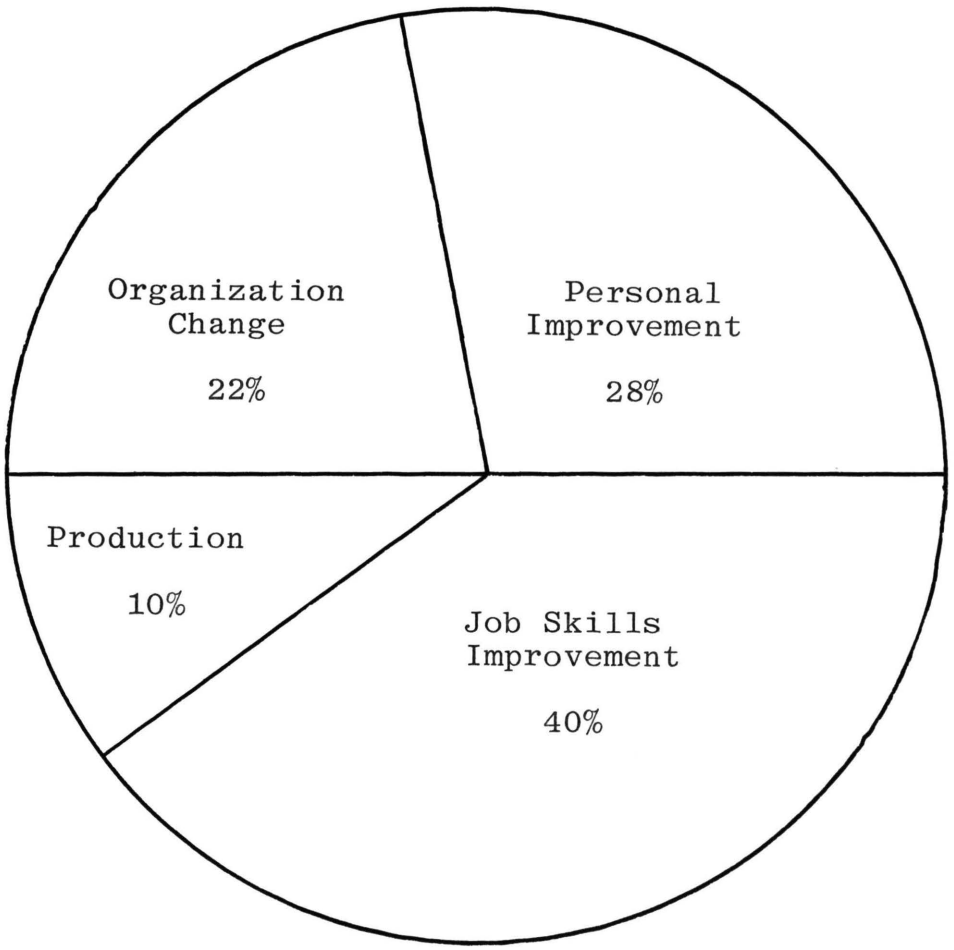

Illustration I. Objectives of Training Programs

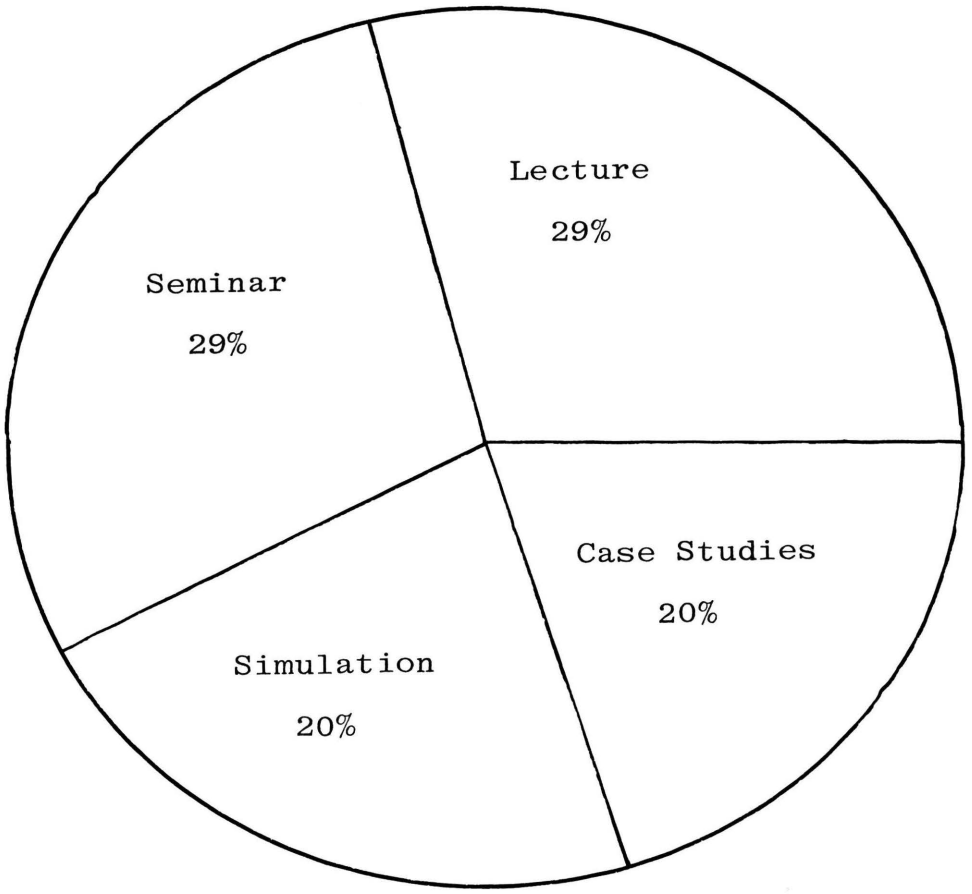

Illustration II. Training Technique Use

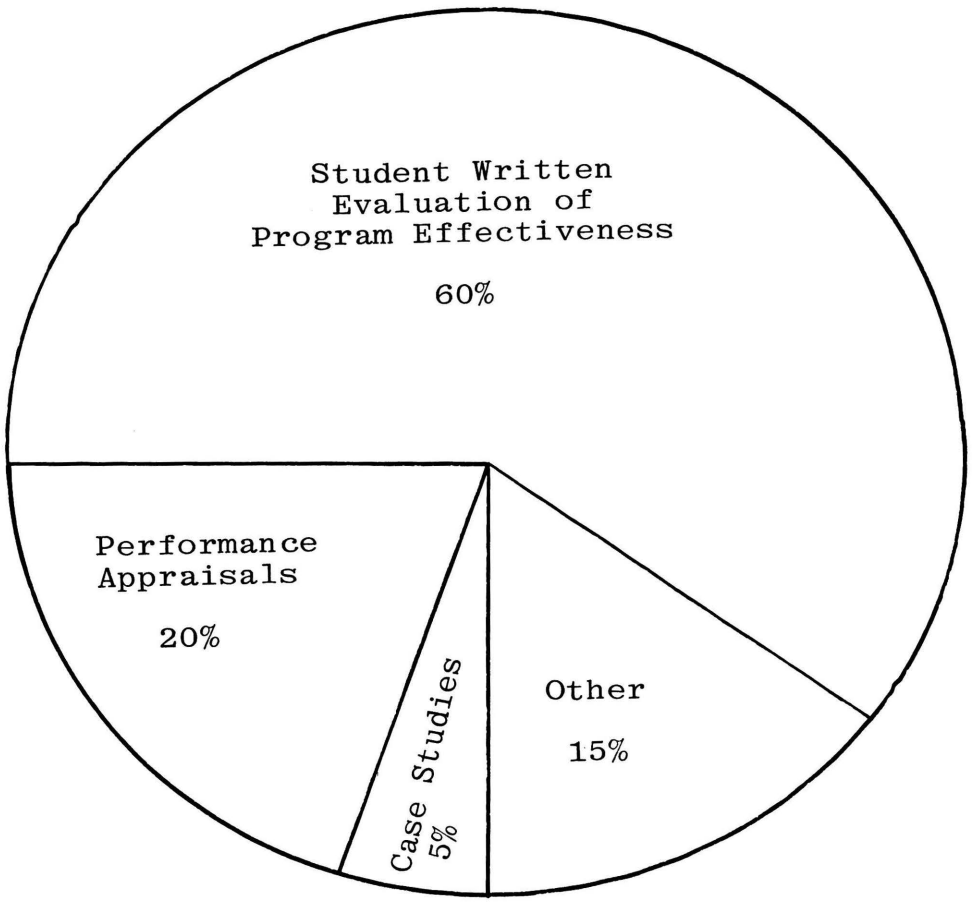

Illustration III. Percentage use of Techniques in Determining Program Effectiveness

SALARIED PERSONNEL MOVEMENT IN A TRAINING SYSTEM

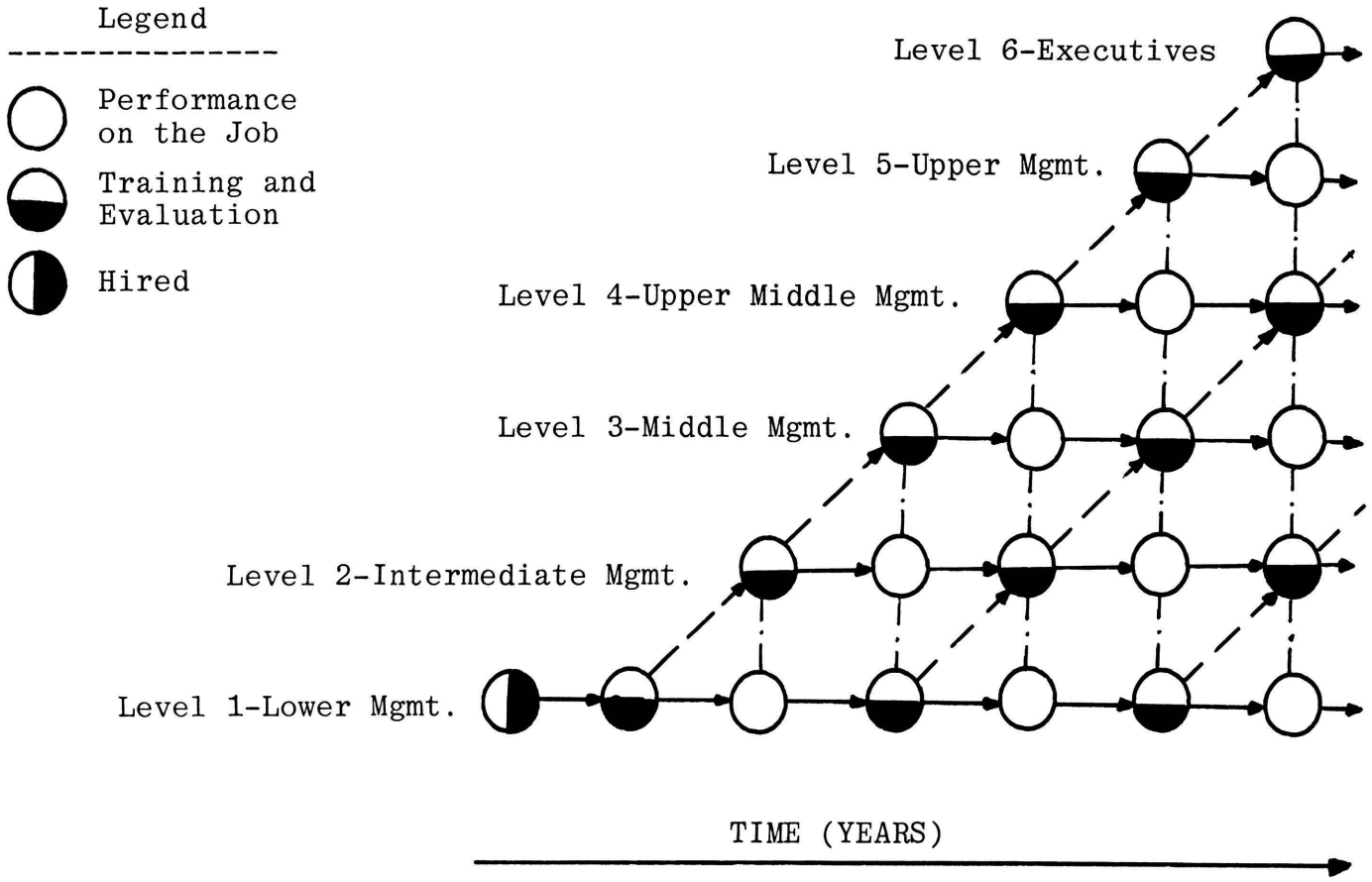

Figure 1

Appendix 4

LIST OF EVALUATION TECHNIQUES

	Method	Percentage Use
1.	Written Evaluation by Fellow Trainees of Each Other's Performance	4
2.	Dollar Value of Training vs Cost Savings	2
3.	Written Evaluation by Trainees of Program	12
4.	Statistical Improvement	22
5.	Attitude or Behavior Change - As Perceived by Superior	6
6.	Pre- and Post-Written Test	11
7.	Perceived Interest	4
8.	On-The-Job Performance as Perceived by Superior	1
9.	Pilot Groups	1
10.	Managerial Feedback	11
11.	Performance Appraisal	10
12.	Evaluation (verbal) by Trainees	2
13.	Questionnaire After 3 Months	1
14.	Customers	1
15.	Survey Trainees	3
16.	Case Studies	1
17.	Class Popularity	1
18.	Rating (Peers, Superior)	2
19.	Organization Change	1
20.	Psychological Testing	2
21.	Self-Evaluation By Trainee	2

Appendix 5

EXAMPLES OF IN-HOUSE DEVELOPED CASE STUDIES

Case Study #7

"The Engineer Who Has Topped Out"

You are a group manager of a product engineering group in the Electronics Components Division of a fairly sizable defense company. You have 50 engineers and 20 technicians working under you. Each of them has served with the company for varying periods, some as short as six months and others up to 26 years although not totally in product engineering. Some have worked in manufacturing, others in customer installation and service. Only a few have been in the same group since the company started 30 years ago.

One of the veterans is an engineer named Scotty. During his 27 years with the company, Scotty has been in at least four different departments. He has been in manufacturing, customer service, plant maintenance and for the last four years in your group. He is 47 years old and has a grown family. He earns a salary which would place him in the above adequate range.

For the past year and a half you have sensed growing dissatisfaction in Scotty, and this has been manifested in some discussions he has had with you regarding the chances of promotion to positions in other parts of the corporation. You have a personal liking for Scotty, and you have tried

to help him. You have circulated his resume to other departments in an effort to find him a promotional opportunity; none has been successful. Scotty is not convinced that you are doing your best to get him such a promotion. This dissatisfaction and lack of conviction on his part is increasingly evidenced by his sliding performance. His work has been late, it is not as accurate as it has been before, his pre-project work has been rather superficial. You know that he can do better work. At the same time, you now have serious doubts that he is going to ever be able to do any better. In fact, you have almost convinced yourself that he is at his highest level of competence and that others have already seen this before you became aware of it.

You are convinced that he has talents and experience which would make him a very valuable man in his present position. His annual performance interview comes up within the next ten days. Outline your objectives for this interview and how you propose to handle the session so that your objectives are understood and agreed to by Scotty.

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"THE MANUFACTURING TRANSFER"

You are an electrical and instrument supervisor in an Engineering Department of a major company with a wide variety of manufacturing interests. In your group you have a total of eleven men ranging from graduate engineers to technicians. The average service is about nine years; the age of your men ranges from 48 to 21. Your group has been very busy on design of new facilities and the startup of those facilities. Right now you are working on four major projects for three plants. You need all the help you can get and you wish that Personnel could provide you with a dozen competent engineers.

One of your engineers with average performance and with eight years of service in the department has come to you and indicated he would like to work in Manufacturing. For some time you have sensed that his interest in Engineering is lacking, and you have noted that his performance is leveling off. You have discussed this with him on one or two occasions. The last time he asked for a transfer into Production. In view of his performance and in view of his interest in manufacturing programs and his ability to get along with people, you decide that this might be a good move, and Personnel arranges several interviews. Others in the section know that he is being interviewed, and it is rumored in the section that he is only an adequate performer.

Within due course, a transfer is arranged to one of the plants.

Within a month after the transfer, two of your better engineers come in and request transfers. Through their work with the Divisions and in the startup operations, they have learned that the man who was transferred has been given the title of Production Supervisor, that he has his own office and he has openly hinted at a big raise. Your two engineers know that the plant has vacancies and would like to apply for them. You sense that they may have already discussed these openings with plant personnel, although you can't be sure.

Discuss what action, if any, you will take and how you will tell them of your decision.

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